WIRELESS AS A SCHOOL SUBJECT.

MR. HIBBERD'S LECTURE ON "THE EDUCATIONAL POSSIBILTIES OF RADIO."

As already announced in these columns, Mr. R. J. Hibberd, the headmaster of Grayswood School, to whom the introduction of wireless as a school subject is due, visited Holland during the Whitsun week-end, and at the Radio Station at The Hague delivered the first lecture ever "broadcasted" in Europe. Mr. Hibberd's subject was "The Educational Possibilities of Radio," and in the course of his remarks, which were heard by wireless amateurs throughout the country, he said:—

The recent war was acknowledged to be one of scientific appliances, and the neglect of teaching some form of science in public elementary schools was never more apparent than when such knowledge was required. Not months, but years of the war were spent in imparting to service men some essential science. To cite an example, the average wireless operator took approximately twelve months to approach efficiency. The majority of men did not know the meaning of "positive and negative," much more the "magnetic law."

No-one will deny that we are living in an electrical age, and every boy and girl should have some knowledge of this branch of science. It may be the girl using her electric iron, or the boy adjusting the magneto of his motor cycle; but whatever they are doing, they are bound to come in contact with it in after life. Yet they leave school having hardly heard of it. Electricity and magnetism in some attractive form should be included as one of the essential subjects in every school curriculum, from the smallest primary school to the highest Technical Institution. Too much time has been spent in schools in training pupils to appreciate the aesthetic side of life; the practical part has been sadly neglected. It is openly admitted amongst teachers that many of the "hand and eye training" subjects do not appeal to children. Where there is a lack of interest, there is bound to be a lack of knowledge. It is quite possible that electricity and magnetism imparted in text book style would be equally distasteful; but placed before the pupils in attractive form, it is bound to succeed. This can, and has already been accomplished by me, through the medium of wireless telegraphy and telephony. The theory and practice of radio comprises the application of all the known principles of electricity and magnetism. From my own actual experience in teaching this subject, I cannot over emphasise the enormous and sustained interest it has aroused amongst my pupils.

To boys and girls there is no more fascinating subject—teeming with interest, surprise, and expectancy. Picking up signals from various stations throughout the world cultivates concentration of a very high order. The reception of signals by means of the Morse Code also attains this end, besides training the memory and making the brain alert, for one letter missed may confuse a whole message. Consequently, perfection in reception is the ambition of every pupil. These points, however, are of minor importance when compared with its value if correlated with other school subjects. In physical and political geography lessons, I have found it has unlimited scope. In my own school, two pupils are detailed each week to take the wireless weather reports each morning, an example of which I give below:—

"Western 0800. Anti-cyclone southern England, depression off north-west of Ireland. Forecast: Moderate to fresh south-westerly winds, much cloud, showery, visibility fair. 11457, 13437, 18548, xxxxx, 17427, xxxxx."

This is fixed to a chart which I have specially designed for the purpose, and on which is also a blank map of the British Isles. The boys mark on the map all the meteorological observations received, such as: anti-cyclone, depression, etc. All the pupils read this report each day, and it is also fully discussed as to cause and effect, and explained in the geography lesson. Without going into further details, the value of such work is obvious to anyone. During wireless reception, there is always keen competition as to who can receive the most distant station. The places are, out of curiosity, looked for on the atlas by the pupils. Their location and approximate distance from the British Isles thus become familiar to the children. The astronomical time signals are received each day, and these have greatly assisted me in explaining latitude and longitude. Such useful instruction, which, of course, is only touched upon in a primary school, can be developed and made use of to its very fullest extent in secondary, technical and continuation schools.

is a very wide field for the correlation of wireless with arithmetic and mathematics. The subject teems with simple and difficult mathematical problems, suitable for all grades of schools. A simple illustration will save a long explanation. A piece of radio apparatus termed an inductance was constructed by some of the pupils. Its range had to be calculated, and the formula given below was used:

Pupils in the Upper Class found no difficulty whatever in working out problems relating to the subject. For the purposes of instruction, the problems could be suited to the capabilities of the pupils. In Secondary, Technical and Continuation Schools, exercises can be given of a much more difficult type which involve higher mathematics. The types and variation of such problems in this subject are unlimited. They have the advantage over text books, being of real interest, as in the higher schools a thorough knowledge of the theory and practice of the apparatus depends upon the problems being thoroughly mastered.

It is unnecessary for me to show its value as a science lesson, as that is apparent to all. However, it is well to point out that the working of present day radio telegraphy and telephony depends entirely upon the thermionic valve, the action of which is based upon the electron theory. As stated at the recent meeting of the British Association at Edinburgh, we are on the eve of great discoveries in this branch of science. Every scientist will gladly admit there is no better field for such research work than radio telegraphy. Therefore, this subject must have its place in the curriculum of every type of school. When school is finished with the subject is bound to be transformed into a valuable hobby by all the pupils. Looking at it from the practical side, anyone who thoroughly understands wireless, automatically grasps the general construction and theory of all that pertains to electricity.

The application of it to two other subjects is worthy of mention. They are manual training and language. In the former pupils can be taught to construct such things as coils, condensers, etc., and eventually make their own complete sets. Its correlation with language lessons is perhaps novel, but nevertheless of enormous value.

As an instance, up-to-date conversational French can be received by wireless telephony, so that the dry-as-dust "French Conversation Book" can be dispensed with. This is not a fantastic dream, but an actual fact which is taking place daily.

The educational value of wireless is not, as I have endeavoured to prove, a freak idea, but is based on my own actual school experience extending over a period of two years. Although there is admittedly not much scope in a small village school, yet the results which I have obtained more than justify the need of wireless in every type of school. The initial cost is not large, and the upkeep infinitesimal.

I will conclude by stating that the subject realises the ambitions of the Board of Education, namely: "To develop the intelligence . . . . and to fit the pupils, practically as well as intellectually, for the work of life. . . . . To train them in the habits of observation and clear reasoning. . . . and to gain an intelligent acquaintance with some of the facts and laws of nature; to arouse in them a living interest in the ideals and achievements of mankind. . . . and a thoughtful study which will enable them to increase that knowledge in after years by their own efforts."

What more could be desired? I am certain that the time is not far distant when the name of Professor Fleming will be as well-known as that of George Stephenson amongst school children. You can realise by this experiment distance has been annihilated by wireless telephony, and I venture to predict that the time will come when a number of schools scattered over a wide area will receive lectures in the same way that you have received this to-day, from one professor speaking into a radio telephonic transmitter at London University.

WIRELESS WONDERS.

TAUGHT AT SURREY VILLAGE SCHOOL.

MESSAGES RECEIVED DAILY.

In view of the boom given of late to wireless telegraphy and telephony it is interesting to recall that the little village of Grayswood, between Godalming and Haslemere, prides itself on the fact that for the past two years this fascinating subject has been taught in the school, which claims the distinction of being the first public elementary school to be equipped with a wireless station. Moreover, it is believed to be the only elementary school in the country where wireless forms part of the curriculum.

The fact that the school children of this little Surrey village are in this unique position is due entirely to the interest and initiative of the headmaster Mr. R. J. Hibberd, who, in providing and installing the apparatus, received no assistance, financial or otherwise, from the education authorities. Mr. Hibberd, formerly an assistant master at the Epsom Church of England School, is a member of the Wireless Society of London, and during the war served as a lieutenant in the wireless section of the Royal Air Force. After demobilisation, he contemplated introducing wireless into the school at Epsom, where he was then engaged, but, before the plan could be put into operation, he was appointed to the headmastership at Grayswood. Shortly after his arrival there Mr. Hibberd installed the wireless apparatus at the school, where during the past two years it has been a real educational asset. The instrument is a three-valve receiver, capable of receiving speech, music, and Morse code from stations in Europe and America. It was designed by Mr. Hibberd himself in order that the scholars might easily understand it and operate it without assistance, as those in the upper class have done for some time past. Two pupils are detailed each morning to take the time signal from Paris, and to adjust the school clock accordingly. The daily weather report is also received each day from the Air Ministry's station at Kingsway House. The meteorological observations contained in the report are entered by the boys on a specially prepared blank map of the British Isles, which is made use of in a subsequent geography lesson. On Thursdays a proper wireless lesson is given to a large class of scholars, all of whom can "listen in" simultaneously by means of a "loud speaker."

"My aim is not to make wireless operators of the children," said Mr. Hibberd to a representative of the "Surrey Advertiser," "but to get them to apply the knowledge to be derived from the study of wireless to other subjects. By correlating it with other subjects I find it stimulates the scholars' interest in the lessons, which, of course, is greatly to their advantage."

On Whit-Sunday Mr. Hibberd was at the radio wireless station at the Hague, where he gave a lecture—the first ever "broadcasted" in Europe—on "The Educational Possibilities of Radio." This was heard by a large number of people in England, including residents of Haslemere, Godalming, and Shackleford. Electricity and magnetism in some attractive form should, he said, be included as one of the essential subjects in every school curriculum. From his own actual experience in teaching radio at Grayswood school he could not over-emphasise the enormous and sustained interest it had aroused amongst his pupils. There was a very wide field for the correlation of wireless with geography, arithmetic, mathematics, and other subjects. He ventured to predict that the time would come when a number of schools scattered over a wide area would receive lectures from one professor speaking into a radio telephonic transmitter at London University.

At his own house some distance from the school Mr. Hibberd also has a transmitting as well as a receiving set, and, by means of a controlling arrangement devised by himself, he can hear messages or music in any room in the house.